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The Egress Problem for Retrofit Windows

This is not a proposal for Standards amendments. It is intended to provide a cautionary note when amendments are considered that could affect the window retrofit process.

The following comments are intended to further inform the Commision on one of the points made by the Insulation Contractors Association (ICA) at the October 22 workshop on construction standards. The ICA is concerned that a current regulatory problem might be inadvertently exacerbated in the process of updating the Commission¹s construction standards.

The basic problem arises when a thermal window is retrofitted into an older home. There is a considerable conservation potential in this operation because of the many millions of homes built before new construction regulations required thermal windows. Home owners are now buying them for three basic reasons. Visits to new homes with thermal windows demonstrates the improved comfort and sound attenuation. Since all new homes have them, placing thermal windows in an older home makes it seem more modern. The energy conservation benefit is also seen as a value.
Some of these retrofits are being done with help from utility sponsored energy efficiency programs. Most are done without such assistance. This process is not a trivial matter for energy efficiency, since it is a going business all over California. For some ICA members, this work is a major part of their business. Every retrofit thermal window benefits energy conservation. It should be obvious that, the more expensive the process of installing retrofit thermal windows becomes, the less likely that the many millions of homes without them will be retrofitted.

Background
Starting in the 1960ies, building standards have required a minimum net free opening and maximum sill height for bedroom windows. The purpose of this regulation is to prevent people being trapped in bedrooms by fire or earthquake. These regulations have become increasingly strict.
Much the most economical way to retrofit a window is to remove the old window and place the new one inside the existing frame, which is part of the building. This eliminates the need for framing carpentry and outside finish work. In most jurisdictions, this operation is regarded as minor renovation and does not require the added time and trouble of securing a building permit. When a building permit is required, many local governments require current window egress rules to apply.
When no permit is required, regulations simply require that the home continue to comply with the regulations in effect when it was built. For retrofit thermal windows, this creates another problem easier to handle. The existing window usually has a net free opening which is just in compliance with the rule in effect when it was installed. The frames of thermal windows are larger, so replacement with a similar style window will tend to slightly reduce the net free opening. This can be handled by explaining to the home owner the reasons for the egress requirement and then using a different style of window with a net free opening that equals or exceeds that which was in place. For example, a casement window or a sash window where both sashes are removable.
A more difficult problem is caused by the fact that almost all older homes have sill heights a few inches higher than allowed by current window egress

regulations. So compliance with current rules automatically causes the considerable added expense of frame carpentry and exterior finish work, which can easily double the cost of a window retrofit job. In most jurisdictions, this framing work will call for a permit, which may mandate current egress standards. This increase in cost automatically greatly reduces the likelihood that the homeowner will elect to do the work.

At present, field practice varies. The ICA has unsuccessfully sought an interpretive ICBO ruling which would simplify this problem by accepting the existing sill height and easing the inspection problem by mandating the same net free opening for all retrofit windows. The necessary unanimous assent was not achieved.

The following is the recommendation the ICA provides to its members as the proper action for a contractor doing residential window retrofit:

1) to ensure that the existing sill height is not increased and

2) to persuade the home owner to install bedroom windows that have as much or more egress (net free opening) as those removed.

Part of this persuasion of the home owner should consist of an explanation of why bedroom window egress is desirable and what action by the occupant is needed to achieve the maximum opening in order to escape from the bedroom. The window installed should be a configuration which allows as much, or more, net free opening as the window which is removed.

This can be done within the existing frame with any of several approaches. For example: use a window where both sections may be removed or use a window form that allows the whole window to swing open. This procedure does not add much to cost. Where the homeowner desires uniformity with other (non-bedroom) windows, this change in window form will not add much to the cost of the job. This action ensures that the home meets or exceeds the rules in effect when it was constructed. More important, it ensures that egress from the bedroom is possible in the event the door is blocked by fire or earthquake.

All action taken on any contract involving retrofit thermal window installation should be documented. This includes notation that the customer was instructed in the importance of bedroom egress and on the action necessary to get the maximum window opening.

Summary

The most economical present practice on installing retrofit thermal windows calls for removing the existing window and replacing it, within the existing frame, with a thermal window which provides the same net free opening. For thermal windows, this will usually require a different style of window.

This information on the window retrofit problem and our recommended procedures is provided in the hopes that there is no inadvertent action as a part of the current revision of the residential construction standards which might make this process more difficult. The more difficult and expensive, the fewer homes will undertake to install retrofit thermal windows.

Respectfully presented,

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